

CLAIMS

1. A mechanoluminescence material characterized in that the matrix material is a composite metal oxide containing strontium and aluminum as represented by the general formula



(M¹ in the formula is an alkaline earth metal)

or



(M² in the formula is a rare earth metal)

and the center of luminescence is a rare earth metal or a transition metal capable of emitting light when carriers excited by mechanical energy return to the ground state.

2. The mechanoluminescence material described in Claim 1 in which the composite metal oxide containing strontium and aluminum is $\text{Sr}_2\text{Al}_6\text{O}_{11}$, $\text{SrCaAl}_6\text{O}_{11}$, $\text{SrBaAl}_6\text{O}_{11}$ or $\text{SrMgAl}_6\text{O}_{11}$.

3. The mechanoluminescence material described in Claim 1 in which the composite metal oxide containing strontium and aluminum is $\text{SrLaAl}_3\text{O}_7$ or SrYAl_3O_7 .

4. A method for the preparation of a mechanoluminescence material characterized in that powders of salts or oxides of the respective ingredient metals corresponding to a composite metal oxide containing strontium and aluminum as represented by the general formula



(M¹ in the formula is an alkaline earth metal)

or



(M² in the formula is a rare earth metal)

are admixed with a salt or oxide of a metal selected from rare earth metals or transition metals capable of emitting light when carriers excited by mechanical energy return to the ground state in a proportion to make up 0.0001 to 20% by moles calculated for the metal atoms and blended followed by firing at 400 to 1800 °C in a reducing atmosphere to effect doping of the center of luminescence.